The Journal of Psychology and Financial Markets
2000, Vol. 1, Nos. 3&4, 158–160



# EDITORIAL COMMENTARY

## The Old Psychology Behind "New Metrics"

The psychological climate that makes it possible for investors to go wild over Internet stocks, discarding all standards of value learned in their analytical training, has been seen many times before. Parallels include not only the great investment manias of the past—the South Sea Bubble, Dutch tulip bulb frenzy, and the like—but also non-investment manias. The Salem witchcraft trials in colonial days and the anti-Communist hysteria of the McCarthy era come to mind. In each case, certainty by an idea's devotees, coupled with the strong reinforcement found in crowd psychology, propels people to accept with little question a belief system that in other times they might have rejected, or at least questioned.

There have been several market manias during the past century—utility, radio and auto stocks in the 1920s; uranium, television and bowling stocks in the 1950s, and technology stocks in the 1960s—but none have been so intense as the recent mania for technology and biotechnology stocks. In today's technology, communications and biotech bubble, the time-tested standards and disciplines of the past have been almost completely abandoned. In recent years it has not mattered if rapidly growing tech stocks traded at 10 or even 20 times the levels advocated by growth stock theorists in their writings for decades.

### New Metrics

Investors, analysts and money managers have thrown away the analytical techniques they were taught in graduate school or on Wall Street. If these techniques do not justify the soaring prices of Internet and Internet-related telecommunications stocks, then the techniques must be wrong, or obsolete. The cry is heard for "new metrics" that will explain and justify the ever-expanding valuations of the crowd's favorite stocks. There has been a disconnect between price and fundamentals that is wider than ever seen before in American financial history.

Thus an EBAY with only 1/200 of the sales of industry leader Toys R Us was priced at $80, giving it a market value two and a half times that of its giant rival, although it had large losses while Toys R Us had significant profits. Red Hat, a provider of the new Linux software went up 20 times from its initial public offering price (IPO) last fall, only to drop 80% in recent months.

What we have been seeing in recent years is not just a financial phenomenon, but a psychological one. This phenomenon has major implications to tens of millions of investors. Equally important, it has far-reaching implications for studying mass behavior outside of the marketplace.

### Peer Pressure

One recalls the experiments in which subjects in a darkened room looked at a single, stationery point of light on the wall, and were asked to estimate how much the light was moving. The power of suggestion is strong, especially if an accomplice of the experimenter offers, with conviction, an estimate of the movement. In similar experiments, large numbers of subjects were shown a series of line segments and asked to match up those of the same length. Left to themselves, most people completed the task correctly. But subjected to social pressure and peer persuasion, many people maintained that two lines that in fact were of disparate lengths were the matching ones.

So in the market today, if the price of a stock moves up sharply, people believe that there must be fundamentals to justify the new, higher price levels. Otherwise, why would prices have gone up? Granted the reasoning is circuitous, but it has been central to the decision-making of many investment professionals for some years.

The fact that tens of millions of investors, captivated by the excitement of the new technologies, and cheered on by their expert advisors, poured hundreds of billions into these stocks, making their rise a self-fulfilling prophecy, escaped them completely. The real driving force was momentum: Large and rapid price rises, which fostered the belief that a continuation of such increases was inevitable.

### E-Tailers' Saga

Consider the scramble to find new ways to justify the enormous valuations placed on the high-flying

e-tailers. One yardstick commonly used was to measure every customer that had ever purchased anything from the e-tailer and then to assign an extremely optimistic growth rate to future purchases. If a customer purchased two CD's for say 28 dollars, it might be assumed that he or she would increase purchases by 50% the following year, 75% the year after etc. No consideration was given to the fact that many customers made only one-time purchases, or that much of merchandise purchased was available on dozens of other e-tailers' sites or in discount stores.

Ironically, there were at least four comparative web sites that gave the buyer the name of e-tailer with the lowest price on any name-brand items. The few experts who attempted to get the information on active customers were shooed away even by the giants of the industry such as Amazon.com. Amazon also bought a number of e-tailers all deeply in the red thereby extending its large customer list, many of whom were again one-time shoppers. Far more ingenious metrics were proposed as these stocks continued to boom higher.

Amazon also was a master of the accounting loophole. As an example, the revenues of acquired retailers were immediately posted into revenues. The large acquisition costs, however, were amortized. Many other technology companies, including the giants, used similar accounting practices to a greater or lesser extent.

The bubble for the e-tailers and many other tech companies began to collapse in March and April of this year. Since then some of the price drops have been drastic, ranging as high as 80 to 90%—on a par with the drops in well known panics in the past. Through the end of September, an estimated $500 billion to a trillion dollars have been lost in this group alone.

As investors and as people interested in human behavior, we should have an interest in these enormous deviations from normal valuations. One hundred years hence, the spectacle of the current Nasdaq may be viewed as parallel to the somber Dutch in their severe black clothing scurrying frantically to the pubs where tulips were traded. And it brings up a far more serious question. How can the most knowledgeable and best–trained generation of financial experts armed with exponentially better and more detailed financial information commit such major errors, discarding their training and experience which ordered them to act in precisely the opposite manner?

## Psychological Roots of a Mania

We are at an embryonic stage in the study of the effects of psychology on investor decision-making. However, current psychological research provides at least partial explanations of both expert and investor behavior. First let us take a quick glance at some applicable research from the field of cognitive psychology. Researchers have found that people use simplifying cognitive strategies in an attempt to manage large amounts of information. We all use these informational-processing shortcuts—called heuristics—innumerable times a day to quickly find solutions to everyday problems. Backed by the experience of a lifetime, most of these heuristics or judgmental shortcuts work exceptionally well and allow us to cope with large amounts of data that would otherwise overwhelm us. We know for example that it is faster to fly to a destination 2000 miles away than to drive there, although we don't bother to calculate the results each time.

When statistics come into play, however, the use of heuristics sometimes leads investors into major errors. Studies show that people are simply not good intuitive statistical processors. Psychological influences on our statistical recall tend to distort the normally useful heuristical processes.

## Availability Bias

Cognitive errors attributable to these heuristical flaws have proven costly to investors over time. The first error involves the *availability* heuristic. We recall disproportionately those events that are recent, and those events that are emotionally charged. The more recent and the more salient an event, the more likely it is to be recalled, and to distort our impression of the probability of various outcomes.

A classic example was the rampage in initial public offerings (IPOs) in the first three months of 2000. The average IPO closed 120% above the issue price from the first day of trading through March. The mind-boggling gains made people forget that thorough academic studies have shown that IPOs have proved to be poor investments over decades. The fact that the speculative gains were both recent and salient to investors made them ignore the long-term odds.

But these odds held once again. Within months the IPOs had given up most of the gains dropping close to 50% from the first day's closing price. This same heuristical flaw may well play a significant role in explaining why experts were so willing to abandon their valuation tools in the technology boom of the late 20th century.

## Representativeness

A second major heuristical flaw is called representativeness, a statistical process where we believe two phenomena—market environments, for example—are almost identical when in fact the actual resemblance is superficial at best. An example of representativeness is what Amos Tversky and Daniel Kahneman called the

"Law of Small Numbers." In a research study they found that researchers systematically overstated findings taken from small samples. The statistically valid "law of large numbers shows that large samples will usually be highly representative of the populations from which they are drawn." The smaller the sample or the shorter the record, the more likely the findings are chance rather than meaningful. This cognitive bias helps to explain why money managers and advisors rush to a sizzling but short-term record of performance of the Internet or biotech groups. Experts project conclusions well into the future on company records that are much too short.

### Anchoring

A third important heuristic is called *anchoring*. Anchoring is the use of a certain situation, usually the present situation, as a reference point from which to make assessments. For example, when a stock trades for a period of time between $100 and $120, investors may anchor on that range and debate whether $100 or $120 is the proper value. In reality, the universe of discourse in which their evaluation is anchored may be far to narrow. They disregard the possibility that the stock's true value is $7, or $300.

For example Firepound was a hot IPO last year that went from 15 to a high of 151. Some investors "anchored" the stock in the $130–140 trading range, deciding that they would buy it if it dropped 10% or 20%. But even these lower prices were much too high relative to the stock's real worth. People who purchased it at $130 or $140 lost a bundle as the stock dropped as low as $19. The anchoring heuristic, too, helps to explain why experts were willing to pay such high prices for tech and Internet stocks.

### Hindsight Bias

A fourth statistical problem that has proved costly to investors is called hindsight bias. When people examine past markets it seems easy to tell whether they were fairly priced or wildly overvalued-after all we already know the outcome. But the hurly-burly of current market action, the judgment is much more difficult. Are high tech stocks overvalued today and on the brink of a crash, or is the technological revolution they bring worth every penny of their current prices, perhaps more? Things always appear different at the current time than in retrospect, which makes the abandonment of time tested valuation standards easier.

### Social Reality

Social Psychology also contributes some insights into expert behavior in bubbles or panics. The term social reality refers to how a group of people perceives reality, and how the group's perception influences individual perception. As Leon Festinger who first proposed the theory described it, "When the dependence on physical reality is low the dependence on social reality is high. An opinion, attitude or believe is 'correct, valid and proper' to the extent it is anchored on similar beliefs, opinions and attitudes." Social reality can be a strange amalgam of objective criteria and crowd fancy. The information is often vague, complex, sometimes contradictory, and anxiety producing. Large numbers of experts are drawn by the need to verify their individual views against those of the group in conditions of significant uncertainty.

There is another important question imbedded in a market bubble. When a large group of experts completely abandons its basic training and beliefs and moves in the opposite direction, total disaster often follows. Is there a similarity between the large group's convictions in a bubble, and the convictions of thousands who persecuted witches and sorcerers, or the extreme outbursts of religious zeal that has cost the lives of great numbers through the ages, or the "isms" of the twentieth century that have taken untold millions?

The financial bubble is probably the simplest of the above aberrations to analyze and measure. Could it bear major similarities to these other frightening actions? Further research in the field of finance is important not only to gain better understanding of markets, but also to observe whether decision-making by experts in fields completely unrelated to markets have similar problems.